
Cabinet Air Conditioner

User Manual

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Preface

Thank you for choosing a Civaux cabinet air conditioner. This manual provides the information required to install, operate, and maintain the unit safely. Please read this manual carefully before installation or use, and retain it for future reference.

Statement

Cabinet Air Conditioner RoHS Compliance Statement

European Directive 2015/863 (RoHS) Substance Laws and Regulations

With reference to European Guideline 2015/863, we confirm that based on our current state of knowledge and in compliance with the regulations, we can produce products that comply with the above guidelines.

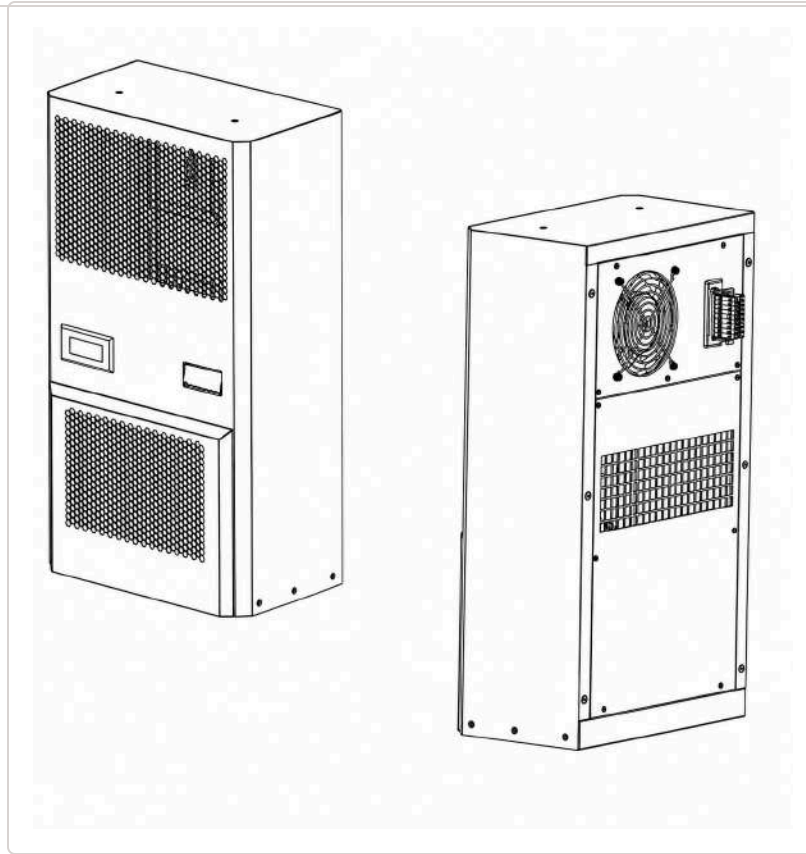


Figure P-1 — Cabinet air conditioner, rear and front panel views

1. Introduction

1.1 Product Description

This series of products are high-performance AC air conditioners designed for communication or related industrial equipment applications. They are suitable for applications where the equipment inside the cabinet generates a lot of heat, is temperature sensitive, and is completely isolated from the inside and outside.

Power grid application range: AC 220VAC $\pm$ 15% 50Hz

For other power supply types, please refer to the nameplate.

Note: During transportation, storage and use, the air conditioner must be kept upright strictly according to the instructions on the packaging.

1.2 Standards Compliant

Standard	Description
GB/T 17626.7-1998	Measurement and instrumentation guidelines for harmonics and interharmonics of power supply systems and connected equipment
GB4706.1	General safety requirements for household and similar electrical appliances
GB4798.1	Classification of environmental conditions and their severity — Storage
GB4798.2	Application environment conditions and transportation of electrical and electronic products
GB4798.3	Electrical and electronic products are used in weather-protected locations

2. Packaging and Transportation

- The air conditioner is packed in cartons, and accessories and other materials are also placed in the boxes.
- Please pay attention to the following matters when transporting the air conditioner:

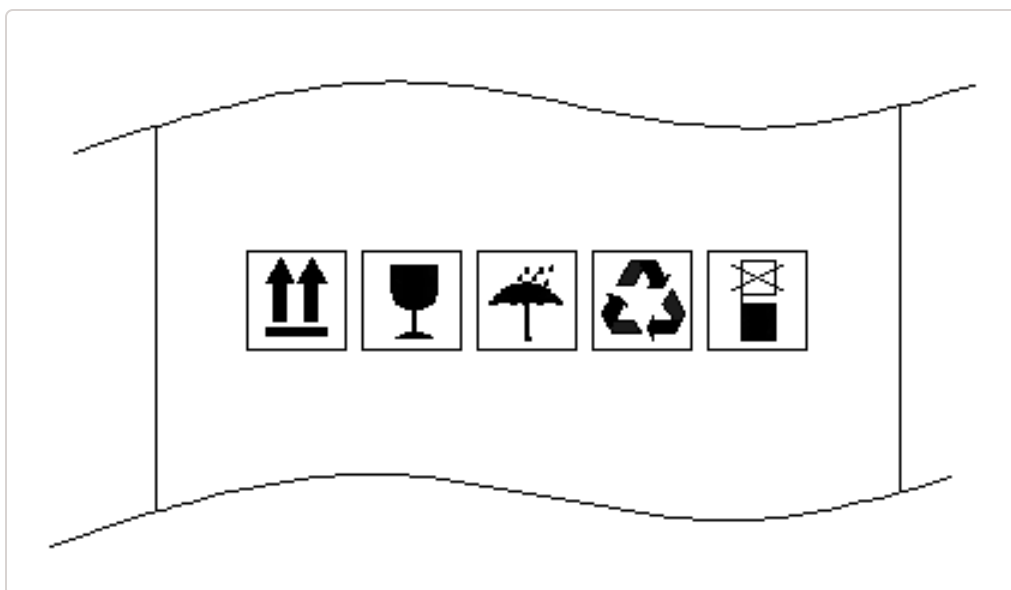


Figure 2-1 — Packing box label

- The air conditioner must be placed upward during handling or transportation. It is strictly prohibited to invert, lay flat, tilt excessively or collide with it.
- The air conditioner is a precision instrument and should be handled with care during handling or transportation. It is prohibited to step on the packaging box, stand on it, or place other heavy objects on it.
- During handling or transportation, pay attention to moisture-proof, waterproof and rain-proof.

3. Installation

3.1 Preparation Before Installation

Before installation, you need to prepare at least the following tools: a Phillips screwdriver, a flat-blade screwdriver, a sealing strip, and pliers.

3.2 Installation Diagram

The installation diagram is as follows:

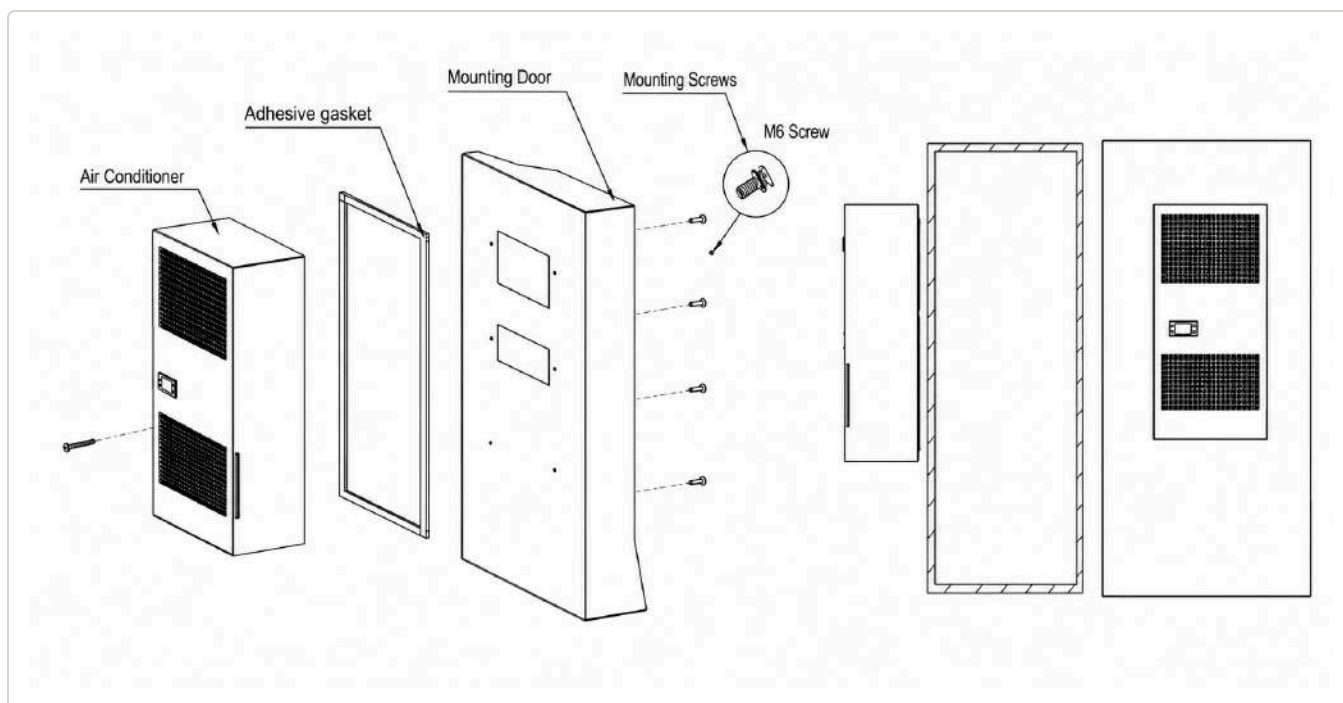


Figure 3-2 — Installation diagram

3.3 Air Conditioner Installation

Installation steps:

1. Draw a schematic diagram of the cabinet door opening on the installation surface and cut off the shaded part. Please refer to the corresponding specification for the cabinet door opening diagrams of different models of air conditioners.
2. Install the air conditioner on the cabinet according to the direction indicated in the installation diagram.
3. If you need to install a water pipe, please install it at the bottom water pipe connection.

Confirmation inspection items after installation is completed:

1. Do not use this product in an environment with high oil pollution, flammable gas, high corrosiveness, or an ambient temperature exceeding 55°C or humidity exceeding 95%.
2. Ensure that the product is not tilted more than 3° after installation.
3. Ensure that the control cabinet is well sealed to prevent air leakage, unnecessary cooling loss and excessive condensation.
4. After the product is installed, make sure the product stands upright for 30 minutes before powering it on.

3.4 Electrical Wiring

Before using the air conditioner, electrical connections must be made according to the instructions in this manual. It is recommended that customers use the cables in the accessories first. Customers can prepare their own cables. If customers are not sure whether the selected cable specifications are appropriate, they can contact the after-sales service department.

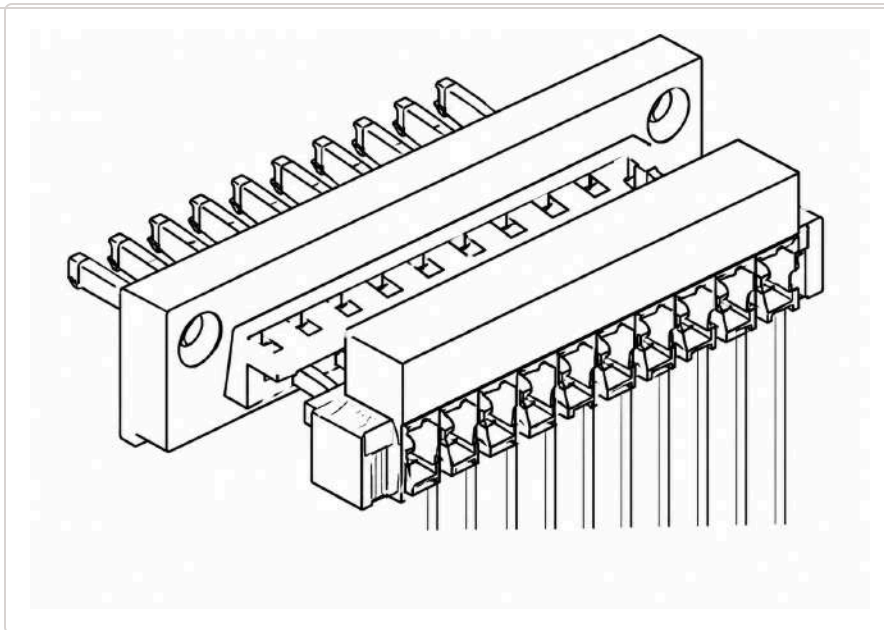


Figure 3-1 — Power terminal diagram

Table 3-1 — Terminal Block Description

No.	Symbol	Definition
1	L	Live line of AC power
2	N	Neutral line of AC power
3	PE	Ground wire of AC power
4	T/R+	Positive pole of 485 communication
5	T/R-	Negative pole of 485 communication
6	NO	Normal open port of dry contact alarm output
7	COM	Common port of dry contact alarm output
8	NC	Normal closed port of dry contact alarm output
9, 10	I/O	Hydrogen discharging port or external signal input port

4. Operation Logic

4.1 Start Up

After the wiring is completed and confirmed to be correct, you can now connect the AC power supply to power on the air conditioner for the first time.

After the air conditioner is powered on, it first executes the self-test procedure, and checks the indoor fan, temperature sensor, heater, outdoor fan, and compressor in turn.

If a fault is found during the self-check process, the corresponding fault alarm will be displayed and the system will enter the alarm state.

If abnormal noise, odor, or smoke is observed while the unit is powered on and running, please cut off the power supply immediately and notify a professional for inspection.

4.2 Control Logic

Operation mode: standby mode, cooling mode, heating mode, alarm mode.

Standby mode

If the return air temperature is less than the compressor start setting temperature (35°C by default), the air conditioner is in standby mode, only the indoor fan is running, and the display shows the current return air temperature.

Cooling mode

If the return air temperature is $\geq$ the compressor start setting temperature (default 35°C), the air conditioner enters cooling mode. The outside fan starts running first, and the snowflake symbol on the display lights up. After the outside fan runs for 60 seconds, the compressor starts and the corresponding symbol lights up. Once the compressor starts, the minimum running time shall not be less than the set value (default is 5 minutes).

If the return air temperature is $\leq$ the compressor start-up setting temperature (default 35°C) minus the compressor operation differential value (default 5°C), and the compressor continuous operation time is $\geq$ the minimum operation time (default 5 minutes), the system

stops cooling. At this time, the compressor is turned off first and its symbol goes out. The external fan is turned off after a period of lag and its symbol goes out.

Heating mode

If the return air temperature is $\leq$ the heater setting temperature (default 0°C) minus the heater operation differential temperature (default 5°C), the heater will turn on to heat the system and the corresponding indicator will light up.

If the return air temperature is $\geq$ the heater setting temperature (default 0°C) plus the heater operation differential temperature (default 5°C), the heating stops and the indicator goes out.

Note: The heating function is only applicable to models with heater.

4.3 Instructions for Use of the Handheld Operator

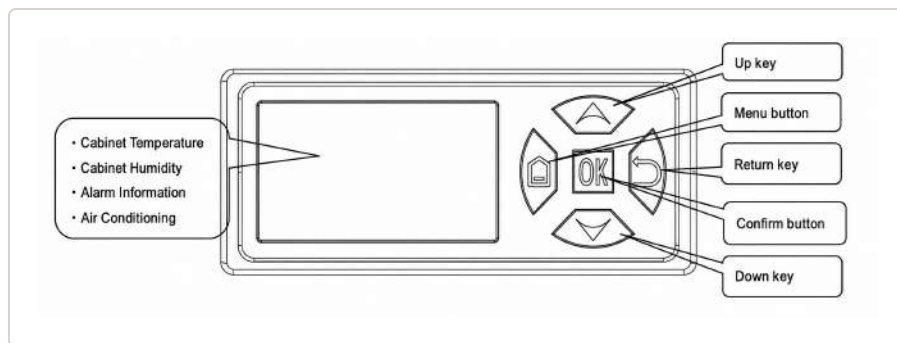


Figure 4-1 — Schematic diagram of the handheld operator

1. After initial power-on, the manual controller first displays the hardware version and software version of the manual controller.

The text information on the main interface is displayed in four lines:

- **Line 1:** Cabinet temperature (display precision: 0.1°C)
- **Line 2:** Cabinet humidity (if no humidity sensor is configured, displays "---.---%")
- **Line 3:** Fault information (if multiple fault alarms exist, they are displayed alternately with a 1-second interval between each)
- **Line 4:** Operating status — e.g., "Air Conditioning Cooling", "Heating", "System Fault" (not displayed during sleep mode), "Heat Exchange", or "Dehumidification"

If a fault does not cause cooling, heating, heat exchange, or dehumidification to shut down, the corresponding normal operating status ("Cooling", "Heating", "Heat Exchange", or "Dehumidification") remains displayed. If a fault causes cooling or heating to shut down, then "System Fault" is displayed instead.

- Press "MENU" on the main interface to display the options: "Password-Free Level Parameters", "User-Level Parameters", and "Manufacturer-Level Parameters". When "Password-Free Level Parameters" is displayed, press "OK" (Confirm Key) to view the corresponding information. Press "MENU" repeatedly (as the Back Key) to return to the main interface.

Table 4-1 — Password-Free Level Parameters List

No.	Parameter Name	Range	Default Value	Modbus Address	Access Type
1	Evaporator Surface Temperature	-40.0°C to 110.0°C	—	40010	Read-Only
2	Cabinet Temperature	-40.0°C to 110.0°C	—	40002	Read-Only
3	Software Version (Hardware: uADC)	—	2.00 / 3.00	40209	Read-Only
4	Compressor	0: OFF, 1: ON	—	00016	Read-Only
5	Internal Fan (AC/DC)	0: OFF, 1: ON	—	00003	Read-Only
6	Fault Alarm Output (Dry-Contact Active)	0: OFF, 1: ON	—	00012	Read-Only
7	External Fan (AC/DC)	0: OFF, 1: ON	—	00004	Read-Only
8	Digital Input ID1 (Door Access Switch)	0: Absent, 1: Present (follows Door Access Input)	—	00054	Read-Only
9	High-Pressure Switch (Refrigeration System)	0: Absent, 1: Present	—	00056	Read-Only
10	System Fault (Triggered by Any Alarm)	0: No, 1: Yes	—	00041	Read-Only

Enter User-Level Operation Mode: On the main interface, press the "MENU" key to display the text: "No-Password-Level Parameters", "User-Level Parameters", "Manufacturer-Level Parameters". Press the "UP" or "DOWN" key to navigate; when "User-Level Parameters" is displayed, press the "OK" (Confirm Key) to show "0". At this point, press the "UP" or "DOWN" key to change the numeric value. When the input value equals the User-Level Password (123 is the user password), press the "OK" (Confirm Key) to enter the User-Level Parameter Setup

Interface. Refer to the Parameter List for User-Level Parameters; repeatedly press the "MENU" (Return Key) to return to the main interface; the method to modify parameters is the same as entering the password.

Table 4-2 — User-Level Parameters

No.	Parameter Name	Parameter Range	Default	Modbus	Access
1	Cooling Activation Setpoint	20–60°C	38°C	40005	Read/Write
2	Cooling Hysteresis	3–10°C	5°C	40006	Read/Write
5	High-Temperature Alarm Setpoint	35–60°C	55°C	40010	Read/Write
6	High-Temperature Alarm Hysteresis	3–10°C	5°C	40009	Read/Write
7	Low-Temperature Alarm Setpoint	–15°C to +10°C	–1°C	40011	Read/Write
8	Low-Temperature Alarm Hysteresis	3–10°C	5°C	40087	Read/Write
9	Serial Communication Address	1–255	1°C	40266	Read/Write

Table 4-3 — Alarm Codes and Related Descriptions

No.	Name	Fault Alarm Dry Node Upload	Modbus	Access
1	Cabinet High-Temperature Alarm	Yes	00009	Read-Only
2	Cabinet Temperature Sensor Fault	No	00005	Read-Only
3	Pressure Switch Activation	No	00014	Read-Only
4	Cabinet Low-Temperature Alarm	No	00010	Read-Only
5	Evaporator Sensor Fault	No	40350-bit2	Read-Only
6	Evaporator Freeze	No	00015	Read-Only
7	Door-Open Alarm	No	00008	Read-Only

4.4 Alarms and Faults

The display shows the return air temperature value when it is normal, and displays the return air temperature and alarm code alternately when an alarm occurs. The alarm code is defined in the following table:

Table 4-4 — Fault Codes

E01 — Return air temperature sensor failure

Failure mechanism: Return air temperature sensor short circuit or open circuit.

Troubleshooting: Use a multimeter to check whether the return air temperature sensor is open or short-circuited. The return air temperature sensor falls off.

E03 — Evaporation temperature sensor alarm

Failure mechanism: Evaporation temperature sensor short circuit or open circuit.

Troubleshooting: Check whether the evaporation temperature sensor is open or short-circuited.

E02 — Condensing temperature sensor alarm

Failure mechanism: Condensing temperature sensor short circuit or open circuit.

Troubleshooting: Check whether the condensing temperature sensor is open or short-circuited.

E09 — Internal fan alarm

Failure mechanism: The internal fan cannot work properly, or the evaporator coil temperature is continuously 15 minutes less than 0.

Troubleshooting: Check whether the connection between the internal fan cable and the internal fan is detached or loose. Check whether the system is leaking.

E10 — External fan alarm

Failure mechanism: The external fan cannot work properly, or the condenser coil temperature has been continuously 15 minutes higher than 77.

Troubleshooting: Check whether the connection between the external fan cable and the external fan is detached or loose. Check whether the system is leaking.

E14 — Low temperature alarm

Failure mechanism: The temperature inside the cabinet is lower than the set value.

Troubleshooting: The heater is on until the alarm is cleared.

E13 — High temperature alarm

Failure mechanism: The temperature inside the cabinet is higher than the set value.

Troubleshooting: Open the cabinet door to dissipate heat until the alarm is cleared.

4.5 Other Fault Analysis and Processing

After the power is turned on, the temperature inside the cabinet is too high, but the air conditioner does not work.

Cause analysis: Power outage or no power supply. The set temperature is higher than the temperature inside the cabinet. System failure.

Troubleshooting: Check the power supply and circuit. Set the compressor start temperature as needed. Please contact professional maintenance personnel.

The equipment is operating normally, but the cooling effect is not ideal.

Cause analysis: The cooling capacity of this model does not match the load. The ambient temperature is too high. Other system failures.

Troubleshooting: Re-select or add refrigeration equipment according to load size. Please ensure that the machine's operating environment temperature is within the normal operating range. Please contact professional maintenance personnel.

Normal operation. The cooling stops suddenly and there is no fault in the electrical system.

Cause analysis: The temperature inside the cabinet has reached the set temperature. Other system failures.

Troubleshooting: Set the compressor start temperature as required. Please contact professional maintenance personnel.

5. Product Maintenance

Preparing tools

Table 5-1 — Maintenance Tools

No.	Tool
1	Multimeter
2	Phillips screwdriver
3	Flathead screwdriver

Table 5-2 — Daily Maintenance

1. Power cord firmness

Testing method: Turn off the air conditioner input power. Pull the power cord by hand to see if it is loose. Use a screwdriver to tighten the screws on the power cord terminal and observe whether there is any looseness.

Troubleshooting: If the power cord is found to be loose, re-tighten it with a cable tie; tighten the loose screws with a screwdriver.

2. Voltage stability

Testing method: Use a multimeter to measure the input voltage of the air conditioner and check whether the voltage is within the normal range.

Troubleshooting: If the voltage is not within the normal power supply range, please turn off the input power immediately and adjust.

3. Mounting screw firmness

Testing method: Use a screwdriver to tighten the air conditioner's mounting screws and check if there is any loose movement phenomenon.

Troubleshooting: If there is any looseness, tighten the screws.

6. Product Warranty

Warranty period

The product warranty period is subject to the company's agreement.

Warranty coverage

During the warranty period, if the product fails due to quality problems, our company will repair it for free. Customers need to provide the product number when reporting the problem. However, failures caused by any of the following reasons are not covered by our warranty.

1. The warranty period has expired.
2. Failure to provide the product's factory serial number (see the nameplate on the body).

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3. Failures caused by operation under abnormal conditions or environments, or installation, maintenance or operation using improper installation methods other than those specified in this instruction manual.
 4. Failures not caused by this device, such as failures caused by the user's device, user's software, etc.
 5. Damage caused by users replacing or disassembling product parts, or damage caused by unauthorized repair service providers.
 6. Failures resulting from damage due to force majeure such as fire, earthquake, flood, etc.

Disclaimer

Our warranty is limited to the products that have been shipped. We are not responsible for any losses that may be derived from equipment failure.

7. Recycling

When the product reaches its expiration date or is no longer used, do not dispose of it directly as garbage. Instead, hand it over to a waste collection center approved by the local government for disposal.